1   1. A search and navigation system for a set of materials, comprising:

2   a plurality of attributes characterizing the materials;

3   a plurality of values describing the materials, wherein each of the values

4   has an association with at least one of the attributes and each association defines an

5   attribute-value pair;

6   a plurality of navigation states, wherein each navigation state corresponds

7   to a particular expression of attribute-value pairs and to a particular subset of the

8   materials; and

9   a search interface, the search interface including a free-text search tool for

10   accepting free-text queries, the search interface being adapted to generate multi-term

11   interpretations of free-text queries, a multi-term interpretation including a conjunction of

12   attribute-value pairs that corresponds to a navigation state,the search interface providing a

13   display of a set of search results for a query, the set of search results including multi-term

14   interpretations.

15   2.   The search and navigation system of claim 1, wherein the multi-term

16   interpretations of the free-text query are minimal.

17   3.   The search and navigation system of claim 1, wherein the search interface

18   supports conjunctive query semantics.

19   4.   The search and navigation system of claim 1, wherein the search interface

20   supports disjunctive query semantics.

21   5.   The search and navigation system of claim 1, wherein the search interface

22   supports customized query semantics.

1   6.   The search and navigation system of claim 1, wherein the search interface

2 ignores stop words in the free-text query.

3   7.   The search and navigation system of claim 1, wherein the search interface

4 treats syntactically related words as equivalent.

5   8.   The search and navigation system of claim 1, wherein the search interface

6 treats semantically related words as equivalent.

7   9.   The search and navigation system of claim1, wherein the search interface

8 performs automatic spelling corrections.

9   10.   The search and navigation system of claim 1, wherein the search interface

10 supports the specification of delimited phrases.

11   11.   The search and navigation system of claim 1, wherein the search interface

12 supports constraining the set of search results to the subset of materials in the current

13 navigation state where the free-text query is accepted.

14   12.   The search and navigation system of claim 1, further including a profile

15 for each of the materials in the set of materials, the profile including descriptive

16 information, the free-text search tool enabling searching the descriptive information in

17 the profiles.

18   13.   The search and navigation system of claim 1, the search interface further

19 including a full-text search tool for searching the set of materials.

20   14.   The search and navigation system of claim 1, wherein the set of search

21 results is organized by attribute.

1   15.   The search and navigation system of claim 1, wherein the set of search

2   results further includes navigation options to the navigation states corresponding to the

3   set of search results. .

4   16.   The search and navigation system of claim 1, further including a first

5   inverted index relating words to attribute-value pairs and a second inverted index relating

6   attribute-value pairs to materials.

7   17.   The search and navigation system of claim 1, further comprising a

8   navigation interface, the navigation interface including a guided navigation tool

9   providing a set of navigation options from the current navigation state to other navigation

10   states, each navigation option providing a direct path to one of the other navigation states.

11   18.   A search and navigation system for a set of materials, comprising:

12   a plurality of attributes characterizing the materials;

13   a plurality of values describing the materials, wherein each of the values has an

14   association with at least one of the attributes and each association defines an attribute-

15   value pair;

16   a plurality of navigation states, wherein each navigation state corresponds to a

17   particular expression of attribute-value pairs and to a particular subset of the materials;

18   and

19   a search interface, the search interface including a free-text search tool for

20   accepting free-text queries, the search interface being adapted to generate single-term and

21   multi-term interpretations of free-text queries, a single-term interpretation including an

22   attribute-value pair that corresponds to a navigation state, and a multi-term interpretation

1   including a conjunction of attribute-value pairs that corresponds to a navigation state, the

2   search interface providing a display of a set of search results for a query, the set of search

3   results including single-term interpretations or multi-term interpretations or both.

4   19.   The search and navigation system of claim 1, wherein the multi-term

5   interpretations of the free-text query are minimal.

6   20.   The search and navigation system of claim 18, wherein the search

7   interface supports conjunctive query semantics.

8   21.   The search and navigation system of claim 18, wherein the search

9   interface supports disjunctive query semantics.

10   22.   The search and navigation system of claim 18, wherein the search

11   interface supports customized query semantics.

12   23.   The search and navigation system of claim 18, wherein the search

13   interface ignores stop words in the free-text query.

14   24.   The search and navigation system of claim 18, wherein the search

15   interface treats syntactically related words as equivalent.

16   25.   The search and navigation system of claim 18, wherein the search

17   interface treats semantically related words as equivalent.

18   26.   The search and navigation system of claim18, wherein the search interface

19   performs automatic spelling corrections.

20   27.   The search and navigation system of claim 18, wherein the search

21   interface supports the specification of delimited phrases.

1   28.   The search and navigation system of claim 18, wherein the search

2   interface supports constraining the set of search results to the subset of materials in the

3   current navigation state where the free-text query is accepted.

4   29.   The search and navigation system of claim 18, wherein the set of search

5   results is organized by attribute.

6   30.   The search and navigation system of claim 18, wherein the set of search

7   results further includes navigation options to the navigation states corresponding to the

8   set of search results.

9   31.   The search and navigation system of claim 18, further including a first

10   inverted index relating words to attribute-value pairs and a second inverted index relating

11   attribute-value pairs to materials.

12   32.   The search and navigation system of claim 18, further comprising a

13   navigation interface, the navigation interface including a guided navigation tool

14   providing a set of navigation options from the current navigation state to other navigation

15   states, each navigation option providing a direct path to one of the other navigation states.

16   33.   A search and navigation system for a set of materials, comprising:

17   a plurality of attributes characterizing the materials;

18   a plurality of values describing the materials, wherein each of the values has an

19   association with at least one of the attributes and each association defines an attribute-

20   value pair, and wherein some of the attribute-value pairs refine other of the attribute-

21   value pairs;

1 a plurality of navigation states, wherein each navigation state corresponds to a

2 particular expression of attribute-value pairs and to a particular subset of the materials;

3 a navigation interface, the interface providing a plurality of transitions, each

4 transition providing a direct path between two of the navigation states, wherein each

5 transition represents a change from the expression of attribute-value pairs corresponding

6 to an originating navigation state to the expression of attribute-value pairs corresponding

7 to a destination navigation state, wherein a series of one or more transitions provides a

8 path between any two navigation states, there being more than one path between at least a

9 first of the navigation states and a second of the navigation states; and

10 a search interface, the interface including a free-text search tool for accepting

11 free-text queries, the interface being adapted to generate multi-term interpretations for

12 free-text queries, a multi-term interpretation including a conjunction of attribute-value

13 pairs that corresponds to a navigation state, the interface providing a set of search results

14 including multi-term interpretations for a free-text query.

15 34. A method for enabling a user to search a set of materials, a plurality of

16 attributes characterizing the materials, a plurality of values describing the materials, each

17 of the values having an association with at least one of the attributes, each association

18 defining an attribute-value pair, comprising the steps of:

19 defining a plurality of navigation states, each navigation state corresponding to a

20 particular expression of attribute-value pairs and to a particular subset of the materials;

21 receiving a free-text query;

1   generating a result set for the free-text query, including computing multi-term

2 interpretations of the free-text query; and

3   providing a display of the result set.

4   35.   The method of claim 34, wherein the multi-term interpretations are

5 minimal.

6   36.   The method of claim 34, the step of generating the result set further

7 including computing single-term interpretations of the free-text query.

8   37.   The method of claim 34, wherein the step of generating a result set uses

9 conjunctive query semantics.

10   38.   The method of claim 34, wherein the step of generating a result set uses

11 disjunctive query semantics.

12   39.   The method of claim 34, wherein the step of generating a result set uses

13 partial match query semantics.

14   40.   The method of claim 34, wherein the step of generating a result set treats

15 syntactically related words as equivalent.

16   41.   The method of claim 34, wherein the step of generating a result set treats

17 semantically related words as equivalent.

18   42.   A method determining results for a query including a plurality of words

19 directed to a set of materials, , a plurality of attributes characterizing the materials, a

20 plurality of values describing the materials, each of the values having an association with

21 at least one of the attributes, each association defining an attribute value pair, the

22 materials and the attribute-value pairs defining navigation states, each navigation state

1 corresponding to a particular expression of attribute-value pairs and to a particular subset

2 of the materials, comprising the steps of:

3   computing the set of corresponding attribute value-pairs containing at least one of

4 the plurality of words;

5   computing the set of equivalence classes of the set of corresponding attribute-

6 value-pairs;

7   computing the set of minimal conjunctions of the equivalence classes; and

8   computing for each conjunction of the equivalence classes in the set of minimal

9 conjunctions the set of corresponding single-term or multi-term interpretations that

10 contain exactly one attribute-value pair from each equivalence class in the conjunction of

11 equivalence classes and that correspond to non-empty navigation states.

12   43.   A computer program product, residing on a computer readable medium,

13 for use in searching a set of materials, in which the materials are characterized by a

14 plurality of attributes, and the materials are described by a plurality of values, each of the

15 values having an association with at least one of the attributes, each association defining

16 an attribute-value pair, and in which a plurality of navigation states are defined, each

17 navigation state corresponding to a particular expression of attribute-value pairs and to a

18 particular subset of the materials, the computer program product comprising instructions

19 for causing a computer to:

20   receive a free-text query;

21   generate single-term and multi-term interpretations of the query, a single term

22 interpretation including an attribute-value pair that corresponds to a navigation state, a

1   multi-term interpretation including a conjunction of attribute-value pairs that corresponds

2   to a navigation state;

3   return a set of search results for the query, the set of search results including

4   single-term interpretations or multi-term interpretations or both.